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ABSTRACT

A study was conducted to test the following hypothesis: There is ample evidence that all the essential elements for a national bibliographic system for audiovisual (AV) informational resources currently exist, and there is, therefore, no apparent reason why a national system cannot be developed, operated, and fully utilized to provide access to these resources. A study team addressed this problem through a combination of strategies: (1) an historical survey was undertaken; (2) an inventory was conducted of current operational systems that use automation to provide bibliographic control of, and access to, AV resources; (3) several types of information-seeking activities were undertaken to help define user needs that should be accommodated in any system of AV resource control; and (4) a list of functional specifications was identified, based on the data gathered from the latter two strategies. It was concluded that the essential elements of a national network system for control of, and access to, AV resources do currently exist, and the lack of agreement on common conventions is a major barrier to the development of such a network. (Author/LLS)

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PROJECT MEDIA BASE

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PREFACE

The genesis of this project can be found in the study Resources and Bibliographic Support for a Nationwide Library Program undertaken for the National Commission on Libraries and Information Science (NCLIS) by Westat and published in August of 1974. That study recommended that a National Library Network be established, and that it be comprised of three coordinated systems: a Resource System, a Bibliographic System, and a Communications System. These recommendations were reviewed by a conference in April of 1975, called by NCLIS to review the study recommendations and identify next steps the Commission should take in implementing the study findings. Conference participants were divided into three groups to discuss, separately, the areas of monographs, serials, and "non-bibliocentric material." The conferees concluded that, while establishment of a serials center should probably receive highest priority, the problems of access to "non-bibliocentric materials" were also very important, but that further study on the nature and extent of the problem would be needed before solutions could be formulated.

Within the Association for Education Communication and Technology (AECT), in the meantime, interest in networking had been stimulated by two sessions on machine-readable data bases for audio-visual resources presented during the AECT annual convention in Anaheim, California. Here, too, it was agreed that a network of audio-visual resources was desirable and that further study was needed.

A plan for such a study was prepared by a small group of AECT members, and submitted to the AECT. AECT approved the plan, but could not provide funds to support it in its entirety. It was decided to approach NCLIS for support, since NCLIS' commitment to the concept of a national network, as described in its widely distributed Program Document,[1] was well known. NCLIS agreed that the study had merit and fell within its scope, and a work plan and budget acceptable to both organizations was developed. An authors' group, consisting of Gerald Brong (Senior Author), George Abbott, James Brown, and Jenny Johnson, was formed and an advisory committee appointed. (Members of the Advisory Committee (TAC) are listed in Appendix E).

This report presents the background and findings of that study. Its specific focus is on the bibliographic control of audio-visual resources. The report discusses why such control is important, indicates the status of efforts to develop such control, and presents some requirements for the future.

The control of print media in libraries was felt to be outside the scope of the project and thus is not directly addressed in this initial study.

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(1) See its Toward a National Program for Library and Information Services: Goals for Action

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I

STATEMENT OF THE PROBLEM

The National Commission on Libraries and Information Science (NCLIS has adopted the following ideal:

> "To eventually provide every individual in the United States with equal opportunity of access to that part of the total information resource which will satisfy the individual's educational, working, cultural and leisure-time needs and interests, regardless of the individual's location, social or physical condition or level of intellectual achievement."

This information resource exists in a variety of storage formats, of which audio-visual materials comprise a significant portion. The ability to access and utilize these aduio-visual resources is thus an intrinsic component of the NCLIS ideal.

Within the library community, efforts to provide access have concentrated on the development of means to uniquely identify and locate specific informational units within organized collections of printed records, i.e., achieving bibliographic control. This emphasis results from the belief that effective access cannot be achieved without first establishing bibliographic control. Because this belief is broadly shared within the library community, progress toward this goal has been fairly substantial. A single cataloging code is almost universally accepted, the MARC (Machine Readable Cataloging) format is widely used, several computer-based cataloging systems are in

operation and plans to interconnect them to form a national network are already in the design stage. Interestingly enough, document delivery--getting the desired item into the hands of the user--while an equally essential component of access, has not, to date, been given the same degree of attention by the library community.

Within the audio-visual community, on the other hand, the primary emphasis has been on effective utilization of material as an aid to learning. While bibliographic control exists within individual collections of audio-visual resources, concern with establishing control on a broader basis--across institutions, or in a network context--has not been widespread. In the absence of general recognition of the significance of bibliographic control beyond the institutional level, individual collections and systems have tended to develop access mechanisms independently of each other. This has resulted in a lack of cataloging standards and costly duplication of effort. Given this context of largely independent operations, a significant problem in developing improved access mechanisms within the audio-visual community lies in obtaining acceptance of the importance of bibliographic control. A second challenge is to devise means for integrating these diverse and disparate operations into an effective network.

II

STUDY OBJECTIVES

In its report _Toward a National Program for Library and Information Services: Goals for Action_, NCLIS has also stated as one of its objectives ". . . to plan, develop and implement a nationwide network of library and information services."

It should be understood that this envisioned nationwide network encompasses far more than a linkage of computer-held data bases. However, the achievement of bibliographic control is seen to be significantly enhanced by the utilization of an automated network linking together bibliographic data bases.

Thus, to begin the process of seeking a means of establishing bibliographic control of audio-visual materials, the study team elected to concern itself primarily with existing data bases describing audio-visual resources: their number, their size, their characteristics, and their users.

The purpose of the Project Media Base was to test the hyphothesis, drawn up by the authors, that:

> There is ample evidence that all the essential elements for a national bibliographic system for audio-visual informational resources currently exists, and that there is, therefore, no apparent reason why a national system cannot be developed, operated, and fully utilized to provide access to these resources.

Further, on the assumption that the hypothesis was correct, Project Media Base sought to define the functional specifications for such an integrated system of audio-visual resources.

Project Media Base was expected to help "develop a plan for a flexible network of information services to meet the immediate and foreseeable information requirements of the greatest number of people."[2] Specifically, it would help the Commission reach its two major program objectives:

> "(1) to strengthen, develop, or create where needed, human and material resources which are supportive of high quality library and information services; and
>
> (2) to join together the library and information facilities in the country, through a common pattern of organization, uniform standards, and shared communications, to form a nationwide network."[3]

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(2), (3) The National Commission on Libraries and Information Science. Towards a National Program for Library and Information Services: Goals for Action. Washington, D.C., 1975. p. XI.

III

METHODOLGY

The study team addressed the problems through a combination of strategies. First, an historical survey was undertaken to trace the origin and development of bibliographic control of audio-visual resources and to relate the efforts involved to their counterparts in the non-audio-visual field.(4)

Second, an inventory was conducted of current operational systems that use automation to provide bibliographic control of, and access to, audio-visual resources. It was felt that such an inventory would be useful in providing a picture of present activity.

Third, several types of information-seeking activity were undertaken to help define user needs that should be accommodated in any system of audio-visual resource control.

Lastly, a list of functional specifications was identified, based on the data gathered from the latter two strategies.

Sections IV, V, and VI provide a more detailed description of each of the activities and a discussion of the findings.

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(4) For convenience of discussion, the terms "audio-visual resources" and "non-audio-visual resources" are used to distinguish between what traditionally has been referred to as "print" and "non-print" resources, since the traditional terminology is not totally accurate.

IV

HISTORICAL SURVEY

The introduction of audio-visual materials into libraries and schools has been a constantly expanding process since the beginning of the twentieth century, when the educational and information value of pictures, lantern slides, victorla records and the like first gained acceptance. As new forms were invented and popularized they were added to existing library collections or became the start of separate collections. Problems in acquiring, organizing and servicing these materials resulted in either case.

In comparing systems for the bibliographic control of audio-visual resources with those for control of non-audio visual resources, one should consider the fact that audio-visual resources are far fewer in number than non-audio-visual resources: they are still "young" when compared with non-audio-visual resources. It is also a fact that many major collections of audio-visual resources (and this includes most of the large circulating collections of motion pictures) exist separate and apart from traditional libraries. Many of the large rental film libraries are associated with major academic institutions but are not part of that institution's library.(5)

While the first publication of standards related to the bibliographic control of audio-visual resources came from localized user groups

(5) The Consortium of University Film Centers is a grouping of major audio-visual libraries that has drawn together to further its purposes related to collection development, distribution of resources, and mutual support for the purposes of enhancing the availability of audio-visual resources as major informational resources.

(such as specific school districts, or the early efforts by the New York State Library, or Keen's Manual for high school library resource centers) the developmental activities generally took place under the auspices of national associations and higher education institutions. Frequently these activities were supported by federal government agencies through research and development grants.

In general, these local activities examined specific techniques relating to bibliographic control systems for audio-visual resources, and developed out of a need to solve specific problems. Many of these activities were undertaken as part of larger research or developmental projects. They were generally unrelated to each other and were oriented toward subject or content rather than toward format. Thus a number of similar, yet uncoordinated efforts were being conducted simultaneously. Upon completion, many of these test programs remained in operation to provide support services.

Even though there was significant activity at both the regional and national level there was little or no cohesiveness, leadership, or precise direction apparent in these activities. Moreover, the major role in these efforts was played by members of the library community in institutions of higher education and the nation's professional associations.

The late 1960's saw a sudden spurt of activity within these professional associations to form interest groups that held among their objectives the study of bibliographic control of audio-visual resources. The leadership in these interest groups, even in different associations, was often provided by the same individuals. Some progress in applying library science procedures to audio-visual resources was achieved through these efforts.

In the library community, the concern for bibliographic control of audio-visual materials was evident as early as 1922, when the H. W. Wilson Company published the Cataloging Rules with Explanations and Illustrations, which pointed out the need for compatibility of bibliographic records of audio-visual material with those for non-audio-visual resources. Prior to the publication of Rules for Descriptive Cataloging in the Library of Congress; Motion Pictures and Filmstrips, 1952, early bibliographic records tended to be phrased in the legal language necessary to the application for copyright. The 1952 rules served as the basis for the development of more conventional audio-visual cataloging procedures in the United States and Canada; they also had an extensive influence internationally. However, this thrust was again library-related, and not concerned with the utilizations of resources to effect learning. This librarian-oriented (vs. learner- or teacher-oriented) influence continues in present library approaches to cataloging audio-visual material.

The Library of Congress continued to foster, over the years, the development of bibliographic control rules for audio-visual resources. However, the ultimate beneficiary of these bibliographic standards, the local librarian or practitioner, was seldom consulted in these activities.

The educational media community made a major contribution to the development and use of rules when the former Department of Audiovisual Instructions of the National Education Association, now AECT, published Standards for Cataloging, Coding and Scheduling Educational Media and established its Cataloging Committee in 1968. This effort was followed by the publication of the Canadian Library Association (CLA), Nonbook Materials: The Organization of Integrated Collections, by Jean Riddle Weihs, et al., in 1973, and the formation of the Joint Committee on Non-book Cataloging by AECT, ALA and CLA.

During the early 1970's, experiments in the audio-visual community focused on networks for the holders and users of audio-visual resources. Emphasis was given to improving utilization of these resources through innovations that facilitated interaction and linking between holders of material, rather than to achieving bibliographic integrity. As a result, many projects developed during this period did not follow the bibliographic standards commonly accepted in the library community. Since those non-standard systems that survived continue to meet local user needs, they are considered satisfactory by the audio-visual community.

In many cases, adherence to nationally observed standards is still not recognized, in the audio-visual community, to be an important means of improving information-sharing about audio-visual resources.

In comparing the systems for the bibliographic control of audio-visual resources with non-audio-visual resources it is evident that bibliographic systems for non-audio-visual resources exist and operate at much more sophisticated levels. The field of library science has evolved systems for the management of very large collections of resources and the records related to the resources in a given collection. Attention has also been given to the systems that provide for bibliographic control of audio-visual resources, especially as they are a part of library systems, but not to the same extent, and these systems are thus, less well developed.

Moreover, cooperation between audio-visual service units and holders of collections is very much less developed than in non-audio-visual programs. This pattern of finding the support systems for non-audio-visual resources more developed than those for audio-visual resources also extends to the processes of networking. The Library of Congress' MARC (MAchine Readable Cataloging) system, begun in 1966 as a pilot project, is a case in point. The system was first applied to monographs, and only later was a MARC format developed for the various forms of audio-visual material. As technology for information

dissemination advances and the number of informational units grows, the library community has begun to enlarge the systematic procedures for making information about audio-visual resources available. The view of a library as a resource and dissemination center for information in a variety of formats has resulted in new services, as well as in enhanced bibliographic control requirements and capabilities.

The accruing evidence is that despite the problems of learning to cooperate and use past experience, there is now definite momentum toward improvement of access to audio-visual materials in the audio-visual community. The combined forces of computer-based technologies and economic stringencies are beginning to have positive results, and a national audio-visual data base shortly may cease to be considered as merely desirable and, instead, be perceived as very necessary. The need for coordinated control and unimpeded access is recognized on every side, and the means exist to accomplish these goals.

The Chronology in Appendix A outlines events in the historical development of networking for audio-visual media. Those events may be categorized as follows:

Emergence of audio-visual materials as significant tools of instruction and sources of information

Involvement of commercial and non-commercial entities (including professional organizations and government agencies) in promoting access to audio-visual materials

Refinement of methods for bibliographic control (pre-and post-automation)

Technological advances in telecommunications and information handling

Specific applications of new technologies

Emphasis on cooperative means for facilitating access to information, and reducing duplication of effort

Recognition of the urgent need to resolve problems and coordinate plans, resulting in a variety of workshops, conferences, task forces, etc.

Financial support from public and private agencies which has made possible pilot projects and studies of the major applications of library automation and networking.

It is evident from the Chronology that history repeats itself, and the sponsors of each new endeavor are seldom aware of the efforts and accomplishments of their predecessors and their contemporaries. This is evidenced by repeated attempts, most of which reached the same conclusions, to survey the bibliographic needs of media specialists, and repeated efforts to establish bibliographic control standards. The Chronology also gives evidence that the need for cooperation has often been noted but seldom found workable.

Efforts such as Project Media Base do bring critical issues to the attention of a broader group of users but, inadvertently state library agencies had very little involvement in this project. While Project Media Base may have been more successful than previous efforts in reaching the end user of systems, it nonetheless failed to reach local or regional coordinating bodies that can facilitate the integration of systems necessary to development of a nationwide network.

Nonetheless, the dynamics of authors' group and TAC interaction contributed significantly to mutual understanding among segments of the audio-visual community. The project provided media specialists, librarians, producers, indexers, bibliographic and data base experts, and users of audio-visual resources with the opportunity to open a dialogue to exchange mutual experience and concerns. The establishment of this dialogue may well be the most significant outcome of Project Media Base, since attempts to establish any national network system for audio-visual materials would certainly be futile without such interchange.

V

USER NEEDS ASSESSMENT

Project Media Base recognizes that any national network system for control of audio-visual materials must respond to actual user needs. The principal methods used in this study to determine those needs were:

a. Literature search (chiefly through the assistance of ERIC-IT at Stanford)

b. Open forums held during three national professional association conventions

c. Solicitation of responses to presentations by members of the Authors' Group and the Task Advisory Committee (TAC)before local or regional groups

d. Solicitation of response by mail to publicity

In addition, input obtained from the members of the TAC and the survey was also used.

In the Fall of 1976, the Authors' Group prepared a working paper based upon the experiences of its members as users and providers of media-related bibliographic information, the results of the literature search referred to above, and the conclusions drawn from two seminars held during the 1976 AECT annual convention.(6) The paper was then used to stimulate discussion at the following open forums:

1. American Society for Information Science (ASIS), San Francisco, October 5, 1976. Attended by approximately 100 school media and public library staff members, information specialists, and others.

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(6) One sponsored by the ERIC Clearinghouse on Information Resources (then at Stanford University) and the other by the Division of Information Systems, both held in conjunction with the 1976 National Convention of Association for Educational Communications and Technology (Anaheim, California, April, 1976.)

2. American Library Association (ALA) Midwinter Conference, Washington, D.C., January 31 - February 1, 1977. Two sessions attended by approximately 175 librarians and school media specialists.

3. Association for Educational Communications and Technology (AECT) Annual Convention, Miami, Florida, April, 1977. Attended by approximately 100 school and college instructional technology and library media specialists.

The Senior Author visited the following four locations to gain further information:

1. National Information Center for Educational Media (NICEM), University of Southern California, Los Angeles, California

2. Extension Media Center, University of California, Berkeley, California.

3. Learning Services Development Office of the California State University and Colleges, Los Angeles, California.

4. Ohio College Library Center (OCLC, Inc.) Columbus, Ohio.

The Senior Author also made the working paper available to the Association of Media Producers for discussion and consideration at one of its meetings. Publicity provided by NCLIS and AECT led to response from individuals not otherwise involved. Several Project members wrote articles or participated in local or regional meetings at which discussions about Project Media Base were held.

Obviously, user needs cannot be identified without a clear picture of the "user." Yet, unequivocal identification of the user of a hypothetical system is not possible. For the purpose of defining user

needs in this project, therefore, two assumptions were made by the authors, with concurrence from the TAC:

--a nationwide bibliographic network providing access to records about audio-visual resources would be developed; and

--the needs of the full range of users of audio-visual resources would be accomodated by the systems.

No effort was made, however, to distinguish between users of present systems and potential users of either present systems or the "network."

Within those parameters, two conclusions were drawn. The first was that the principal users of the network would be:

1. Users of the actual audio-visual resource--including teachers, students, independent learners, general library patrons, organizations, and others
2. Producers of audio-visual materials
3. Managers of audio-visual resource collections
4. Specialists who locate and procure such resources for others
5. Specialists who provide information about such resource for others

Forum audiences differed with respect to opinions about principal users of the projected system. For example, at the AECT meeting, emphasis was upon teachers; ASIS attendees emphasized the general public; at ALA, professional staff needs appeared to receive the highest priority.

The second conclusion was that the principal (but not the only) uses of a nationwide audio-visual data base would be:

1. Reference

    a. Searching for information about items that exist pertaining to specific subjects, media, producers, sources, copyright information, creators, sources, production dates, grade-level suitabilities, and others.

    b. Verifying specific data, such as exact titles, running times, content, producers/creators, and other data, often needed preparatory to publishing catalogs or mediagraphies.

2. Collection Building

    a. Assessment i.e., making preliminary judgments regarding suitability of items considered for purchase, based on such factors as availability, content, format, production data, etc.

    b. Selection.

3. Acquisition

    a. For purchase.

    b. For rent.

4. Cataloging (subject and descriptive)

5. Processing (production of labels, booking and circulation cards).

6. Publication of checklists, catalogs, promotional literature.

7. Statistical support for collection management and for monitoring for gaps, redundancies, replacements, etc.

8. Production support including market analysis: determination of items already available; comparisons of formats, subject coverage, apparent redundancies, currency, gaps, and others.

Other user needs brought to the attention of the Project included the need for holdings statements, statements of physical condition of media, circulation and user data, and analytical item treatment as for example, scene analysis of films and analysis of musical recordings.

In addition to the specific user needs cited above, other more general findings were made:

--A nationwide system for the bibliographic control of nonprint media is necessary. No one challenged the concept or refuted the need for it.

--There is lack of consensus regarding the need for, or suitability of, including in the system evaluative data about media resources themselves. However, there was support for citing sources of evaluative data for items in the system.

--There was no disagreement regarding the need for standardized cataloging rules as part of the system. Those familiar with only one set of conventions for such purposes usually favored the ones used. Those familiar with several sets of rules usually favored the Anglo American Cataloging Rules (AACR).

--Considerable support was expressed for use of Library of Congress (LC) subject headings and for the MARC format for machine-readable access to bibliographic records.

Doubt was expressed, both at the forum sessions and at the TAC meetings, that any one system would be able to meet the needs of all people. A major difficulty in determining user needs lay in the lack of experience with a comprehensive system on the part of the users queried; they could not envision what they had not seen, and needs were thus expressed largely in terms of their own restricted experience. This lack of creative imagination would seem to be corroborated by the tendency of computer-supported bibliographic systems to slavishly follow the traditional catalog card format rather than to create a format more appropriate to the new technology.

VI

INVENTORY OF SYSTEMS

The need for an inventory of audio-visual indexing systems had been recognized before Project Media Base began.[7] Because of its suitability to the goals of the Project, the inventory was incorporated into the project activities. The specific purpose of the inventory was to collect information on systems in the United States and Canada and to assess the degree of similarity among them. A copy of the instrument used is provided in Appendix B.

For the purpose of this survey, the term "system" was used to mean an automated activity involving the storage in a machine-readable data base of information about audio-visual materials, together with the ability to retrieve selected information through an automated query method.

A survey form had been developed prior to the start of the project. With some modification based on Task Advisory Committee review, the form was distributed to approximately 200 institutions and individuals, beginning in December, 1976. Completed questionnaires were received from 43 systems. There was correspondence with an additional 15 systems. Analysis of the responses received has shown that some of the questions in the survey instrument were not appropriately developed. These problem areas are identified in the text that follows.

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(7) Initial steps to conduct a survey had been taken through the ASIS Special Interest Group on Non-print Media in early 1976.

Identification of existing systems was done through personal contact, announcement of the survey in selected library/information science journals, and at sessions held at national professional meetings.

Responses from the questionnaires have been compiled to indicate the number of titles in the data base, the types of information contained in the data base about each item, and some information about the collection of the resources themselves. An analysis of the relationship between system size and characteristics has been made and will be discussed.

From Table 1 it can be seen that most existing systems support relatively small collections--the total number of entries for the majority of systems surveyed is 5,000 or less. The total number of entries from all data bases is approximately one and one-half million and, if the three largest systems are excluded, there are less than a half million entries in the systems surveyed. It should be noted that these figures represent all entries reported from all respondents and do not take into consideration the appearance of an entry in more than one data base.

TABLE 1

NUMBER OF AUDIOVISUAL TITLES IN DATA BASE
(Data from 41 of 43 Responses)

Number of Titles	Number of Systems	Percent of Systems
0-5,000	24	58.5
5,001-10,000	5	12.2
10,001-15,000	2	4.9
15,001-20,000	2	4.9
20,001 +	8	19.5
TOTALS	41	100.0%

The eight systems in the 20,000+ category include: 28,000; 31,000; 38,269; 42,000; 50,000; 229,553; 500,000, and 512,000 titles, respectively. This shows a wide range in the size of data bases. Dates of titles in the data bases range from the nineteenth century to the present with 46% including only current titles.

While it is assumed that the majority of systems represent "working records" of items held, it is also assumed that some systems are inputting data from MARC tapes even if the item represented by a record on the tape is not held in the system's collection. Thus, the number of entries listed should not be equated to number of items actually held.

A further breakdown of the under-5,000-items category, showing that fully 30% of the systems contained 2,000 or less items, is given in Table 2.

TABLE 2

NUMBER OF AUDIOVISUAL TITLES IN DATA BASES
SMALLER THAN 5,000
(Data from 41 of 43 Responses)

Number of Titles	Number of Systems	Percent of Systems
0-1,000	8	19.5
1,001-2,000	7	17.1
2,001-3,000	2	4.9
3,000-4,000	4	9.7
4,001-5,000	3	7.3
TOTALS	24	58.5%

During the mid- to late sixties, a few pioneering efforts were made in the establishment of audio-visual data bases. Notable among these is that of the National Information Center for Educational Media (NICEM), whose data base now contains over 500,000 records. However, since that time there has been a lack of development activity, and only in recent years has the increase in new systems been significant.

TABLE 3

STARTING DATE FOR SYSTEMS
(Data from 34 of 43 Returns)

Year Began	Percentage of Systems	Number of Systems
Pre 1970	14.7	5
1970	8.8	3
1971	5.9	2
1972	8.8	3
1973	14.7	5
1974	8.8	3
1975	17.7	6
1976	17.7	6
1977	2.9	1
TOTALS	100.0	34

Results show very few data bases limited to a specific subject area. AVLINE in the field of medicine and related areas was one of the few exceptions. Most systems were reported to be multi-disciplinary.

Various media formats are included in the collections represented by the bibliographic systems, with the most-represented medium, motion pictures, contained in 88% of the systems. The inclusion of various formats is shown in Table 4. It is important to note that these figures are only an indication of the format of the items included in the data base; they do not represent the relative number of titles in each format.

TABLE 4

TYPE OF MEDIA REPRESENTED BY RECORDS IN THE SURVEYED DATA BASES
(Data from 40 Systems)

Type of Media	Number of Systems In Which Included	Percentage of Systems
Motion picture	35	88
Video recording	31	78
Filmstrip	24	60
Slide	23	58
Kit	22	55
Sound recording	22	55
Transparency	17	43
Print	15	38
Game	14	35
Realia	13	33
Model	11	28
Two-dimensional representation	11	28
Chart	10	25
Map	10	25
Microscope slide	9	23
Flash card	8	20
Diorama	6	15
Machine-readable data file	1	3

From Table 4 it can be seen that of the systems reporting, 62% are audio-visual only, since 38% do not indicate including items in non-audio-visual formats.

The preceding tables have provided a general overview of the content of existing systems. Tables 5 to 8 and Figure 1 provide an analysis of the data organization methods used by these systems. Of the responses received, 53% use an existing standard cataloging code. The remainder use locally developed bibliographic systems specifically targeted to meet local needs.

In the use of subject headings, standardization is far less apparent, with 56% of the systems reporting use of other than Library of Congress or Sears subject headings.

TABLE 5

USE OF CATALOGING STANDARDS

Respondents	Number of Respondents	Percentage of Respondents
Anglo-American Cataloging Rules (AACR)	17	38
Association for Educational Communications and Technology (AECT) Cataloging Manual	8	18
Other	20	44

TABLE 6[8]

USE OF SUBJECT DESCRIPTORS LISTS

Respondents	Number of Respondents	Percentage of Respondents
Library of Congress	13	32
Sears	6	15
Other	23	56

The above tables display the fact that no single standard is used by all systems for providing bibliographic control. A slight majority

(8) Some systems use both LC and Sears; therefore, percentages do not add up to 100%.

(53%) subscribe to either AACR or AECT standards as a cataloging code. Many respondents indicated modifications were made, including some who reported using parts of both AACR and AECT.

Although 53% of all systems surveyed use standard cataloging rules, 75% of the 16 systems that include both non-audio-visual and audio-visual materials use a standard. This would appear to indicate that standard cataloging rules are more frequently used in merged collections of audio-visual and non-audio-visual materials than in separate audio-visual collections.

Thirty percent of the systems were reported to be compatible with the MARC format. However, the degree of compatibility was impossible to determine from the responses. Only five of the systems use the MARC format itself.

The fairly recent development of the MARC AV formats may have accounted for lack of their widespread use. The same may be true in the case of the recent revision of Chapter 12 of AACR.

A media code was used in 22 out of 43 systems but only four use a common code, the AECT code.

A further comparison shows an increase in the use of bibliographic standards as the number of items in the collections represented increases. This factor is illustrated in Figure 1 and Table 7 below.

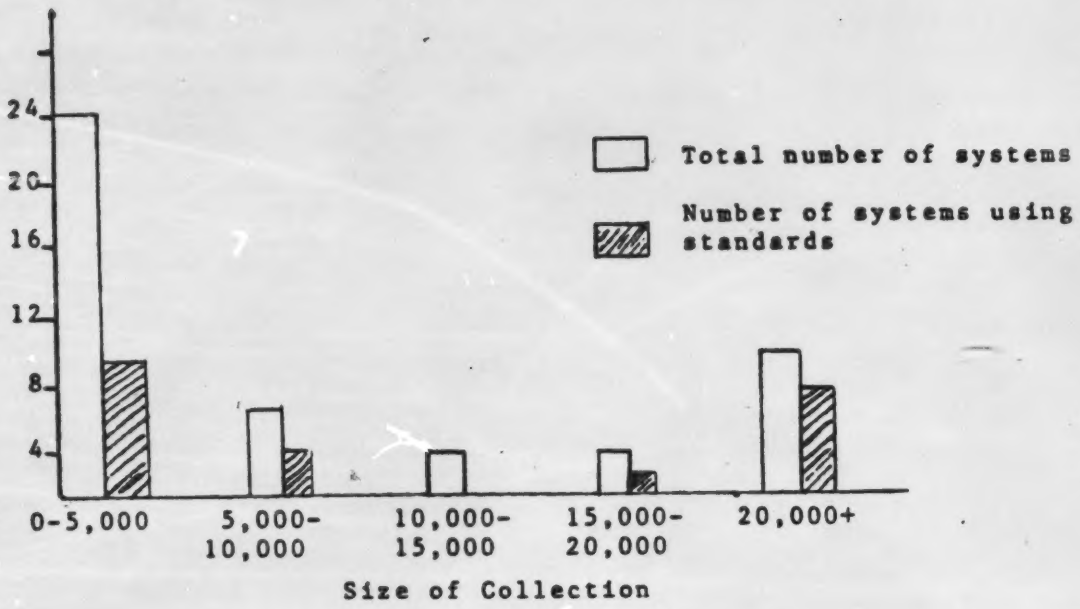

Figure 1. Use of Bibliographic Standards and System Size

TABLE 7

SIZE OF COLLECTION/USE OF STANDARDS

Size	% of Systems in Category	% of Systems Using Standards
0-5,000	58.5	37.5
5,001-10,000	12.2	40
10,001-15,000	4.9	0
15,001-20,000	4.9	50
20,001 +	19.5	75

Table shows that while 58.5%, or 24 of the systems, contain fewer than 5,000 titles, a majority, 15 of these, do not use standard cataloging codes.

The survey has further shown certain data elements to be present in nearly all systems. The frequency of each element's appearance is shown in Table 8.

TABLE 8

FREQUENCY OF DATA ELEMENT'S APPEARANCE
(Data from 39 Systems)

Data Elements	%	Data Elements	%
Title	100	Date (copyright)	64.1
Subject	92.3	Language	61.5
Producer	84.6	Audience/grade level	61.5
Accession or call number	82	Location	51.2
Running time	79.4	Distributor (loan/rental)	48.7
Number of physical units	79.4	Price (sale)	43.5
Series	76.9	Media code	41
Summary	74.3	Producer address	33.3
Distributor (sale)	74.3	Distributor addresses	30.7
Size/format	71.7	Price (rental)	25.6
Author	66.6	LC card number	20.5
Date (release)	66.6	Evaluation	15.3

The attempt to determine which of these data elements were searchable was unsuccessful. It is obvious, however, that the one element contained in every data base is title. It should be noted that not all elements are applicable to all data bases. Elements such as rental price are applicable only to systems that provide rental services. Moreover, not all elements are applicable to all formats. For example, filmstrips generally do not have a running time. The desirability of including evaluative information, the least often cited element, generated the most discussion at the public forums.

Understandably, the least defined areas were related to users and user services. This is due, in part, to the questionnaire design and, in part, to the general lack of information concerning user needs and service options. Many respondents did not fully answer questions 16 through 20.

Many respondents checked more than one category under the question, availability of data base. Table 9 records each reporting system under the widest area of service listed. Although not included as a choice for the question, four respondents indicated making some services available internationally.

TABLE 9

NUMBER OF SYSTEMS

In-house	25
Regional	3
State	3
National	8

The range of end users goes from none to 75,000. Some responses were reported in terms of number of installations using a system rather than number of end users. Systems reporting no users are those using a data base solely for the production of a printed product. Thirty-two of the systems maintain either a printed subject/descriptor list or materials list.

Seventeen organizations indicated that they do not charge the primary users of their system; fourteen did not respond. The remainder listed a variety of charges. Only 16 systems provide for the request of the physical item through their system.

Of the 43 systems responding, seven were in school systems, 19 were in colleges and universities, and the remaining were in government agencies and commercial or nonprofit centers. Only one public library responded.

Several surveys of machine readable data bases already exist, including: *Survey of ERIC Data Base Search Services*, June, 1976, prepared by Elizabeth Pugh, Jonathan D. Embry, and Wesley T. Brandhorst; *Survey of Commercially Available Computer-readable Bibliographic Data Bases*, 1972, prepared by the American Society for Information Science Special Interest Group/Selective Dissemination of Information; and *Computer-Readable Bibliographic Data Bases: A Director and Data Source Book*, 1976, prepared by Martha E. Williams and Sandra H. Rouse. However, they do not include the local in-house non-print data bases identified in the Project Media Base survey.

It had been hoped that the inventory would define a system population, locate operating systems, and identify the formats used in those systems. While the goal of identifying all existing systems has not been met, this inventory has established a core of data for future study. Some organizations did not respond and others, no doubt, were not located. However, we believe these systems data to be representative of the activities in the area of machine-readable bibliographic control of audio-visual materials.

In using the above data analysis, one should keep in mind that any review of existing capabilities is not of itself equivalent to needed capabilities. Historical aspects of design, based on available knowledge and technology at the time a system was inaugurated, and design based on suggested user needs rather than actual research user needs, have shaped the character of many existing systems.

VII
FUNCTIONAL SPECIFICATIONS

The survey of data bases reported in Section VI confirmed the belief that coordination among data base developers is minimal. Unlike the non-audio-visual bibliographic data bases which, in large part, are built according to a single cataloging code (AACR) and follow a single machine-readable format (MARC), there is significant diversity in the content and structure of the audio-visual data bases covered in the survey.

Effectively linking such disparate systems as they now stand is not technologically feasible, economically reasonable or logically desirable. In proposing a nationwide system of access to audio-visual resources, it thus seemed propitious that the project attempt to develop a preliminary list of functions that such a system should perform. The list of functional specifications could then be used as a guide both in modifications made to present systems toward their incorporation into a nationwide network, and in the design of yet-to-be built systems.

The project identified the following desirable characteristics of a nationwide audio-visual resource network:

--The system should utilize the MARC format

--It should be able to accept input from a variety of sources and systems

--It should be modular in design and be able to utilize currently available data

--The system should be built on a standard set of cataloging rules(9)

--The system should provide for data transmission among nodes; the responsibility for achieving compatability should be assumed by the nodes

--Library of Congress subject headings should be followed

--The system should allow on-line input and deletion of records--be interactive

--The casual public, as well as system subscribers, should be given access

--The capability to produce off-line bibliographic and management tools should be provided

--Accomodation of non-MARC elements should be provided

--The system should provide multiple access points including (but not limited to):

a. Exact title (include other title information).

b. General material designation.

c. Creator (producer, author, etc.).

d. Availability (distributor, sale source, rental source, loan source).

e. Edition.

f. Dates (production, release, copyright).

g. Language ownership (copyright holder, public domain status).

h. Series statement.

i. Physical description (color, black and white, sound, silent, captions, etc.).

j. Intended audience (education level, restrictions).

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(9) While there was no disagreement regarding the desirability of the standardized cataloging rules, there was not agreement on which to follow. Those familiar with only one set of conventions usually favored the one used; those familiar with several usually favored AACR.

k. Subject access.

l. Evaluative and review date (source and date of review and evaluation).

m. International standard book or serial number.

n. Library of Congress card number.

o. Record source.

p. Price(s).

q. Summary.

r. Notes.

--System characteristics should include:

--quality control

--adequate hours of access

--protection of file integrity

--ease of file maintenance

--provision for subfiles

--adequate indexing

--management and accounting system capability

VIII
CONCLUSIONS

The study team reached five major conclusions:

1. The non-audio-visual, or library, community and the audio-visual community are different in a number of important ways. Many audio-visual resource collections have been established outside the organizational framework of the traditional library.

2. The library community has achieved more progress in achieving control of print media than has the audio-visual community in achieving control over non-print media. There exists general agreement in the library community on common conventions for subject and descriptive cataloging and a machine-readable record format which has, in turn, facilitated the formation of compatible systems capable of interconnecting to form networks. This is not true of the audio-visual community. Moreover, the library community, and the Library of Congress in particular, have been more active in striving for bibliographic control of audio-visual resources than has the audio-visual community itself.

3. Efforts to establish standards, coordinate activities and encourage cooperation among the several communities involved

with audio-visual resources have not been productive to date. Yet if a nationwide network is to become a reality the need to do so becomes more critical as the separate efforts grow in size and complexity.

4. The lack of agreement on common conventions and the resultant disparity among data base structures are the major barriers to development of a nationwide network for audio-visual resources.

5. However, the essential elements of a national network system for control of and access to audio-visual resources do currently exist. It should not be necessary to invent new procedures just because the physical item represented by the record is audio-visual in nature rather than print. However, whether a network for audio-visual resources can and should be integrated into existing non-audio-visual systems, or developed separately with linkages to the non-audio-visual network, is not clear.

IX

RECOMMENDATIONS

While certain of the recommendations made below fall within the purview of the NCLIS, the AECT, or similar professional organizations, others are directed toward practitioners in the field. The assignment of particular responsibility to any specific group or agency is not made.

More recommendations were made than are listed below, but not all were equally supported by the project participants, nor were the ones that follow unanimously supported. There was, however, general agreement that it be recommended that:

--The Project Media Base report be disseminated widely in the library, audio-visual and related communities to provide current information to the affected communities and to generate support for its recommendations.

--Liaison be established with the international community involved in similar effort and activity so that information can be shared to ensure the capability of future integrations of systems here and abroad.

--The use of established standards be promoted, especially the the Anglo-American Cataloging Rules (AACR) and the MARC communications format.

--The inventory of computerized systems for the control of audio-visual resources be expanded and continued as an on-going state-of-the-art project.

--A proposal be developed and funding sought to provide for the study of (1) the means for integrating existing data bases of audio-visual resources towards the provision of network access to such resources; (2) management issues related to the effort; (3) cost-effectiveness of the project, and (4) the relationship of such a project to the network plans of the NAC.

--An information dissemination capability be established, to provide for the collection and distribution of information regarding (1) current networking activity here and abroad; (2) user studies needed or undertaken; (3) the coverage and services provided by media systems, and (4) related items of relevance and interest to the audio-visual community.

--The concept and value of shared cataloging be encouraged and promoted in the audio-visual community.

--Producers and distributors be encouraged to provide complete and accurate bibliographic information, including applicable standard numbers, on the media unit itself.

--The practice be promoted of using the work itself, as opposed to secondary information, in preparing bibliographic descriptions of audio-visual resources.

--The recommendations in this report be considered in the forthcoming White House Conference on Library and Information Services, and in the state and territorial pre-White House Conferences.

APPENDIX A

CHRONOLOGY

APPENDIX A

CHRONOLOGY

The chronology which follows highlights events in the development of bibliographic and networking activities that are pertinent to the control of audiovisual materials. Any chronology of a topic is necessarily the skeleton of its history, and a disjointed one at that. Due to the limitations of the format it is difficult to show the interaction of events to produce a particular result, and it is equally difficult to single out or emphasize the most important events. Further, when several paths lead to a climax of some sort, it is hard to identify the events belonging to the particular paths. There is an almost inevitable result that trends become tangled and conclusions which should be obvious become obscured. In addition to these problems, there is the risk that some obscure event may be given attention, while another event of great importance is omitted.

This chronology could have begun with prehistoric cave paintings, traced the development of the alphabet, the invention of printing, the background of modern cataloging theory, and the invention of computers and the accessory technology. However, even a cursory search of the most obvious events and publications revealed a volume of material that would be impractical to attempt to cover. Suggestions were sought from the authors and the members of the Task Advisory Committee, state-of-the-art studies were reviewed, and from these sources the most frequently mentioned or apparently significant events were selected. In the interest of primary relevance, however, the remote background events were excluded and only those seeming to have direct or eventual bearing on the development of a national network system for audiovisual materials were included.

Despite the attempt to include only the most significant events, the reason for inclusion of some may seem obscure. Usually such inclusions were necessary as background and support for later events of unquestioned importance. Brief explanatory comments were added to some entries in order to either justify their inclusion or clarify their significance. In some cases the exact beginning dates were difficult to determine, therefore errors of one or two years are possible.

The selection of publications to be included from extensive bibliographies was particularly difficult and may have resulted in serious omissions. Numerous locally produced catalog codes and commercially supported selection aids were omitted intentionally. For those publications which have been through several editions and revisions, no attempt was made to include every issue, and while works are not cited in standard bibliographic form, sufficient information was included to provide accurate identification. Sources of information and quotations are not documented, but whenever possible statements were taken from committee reports and/or the publication being cited.

Frequently used abbreviations and acronyms are:

ALA	American Library Association
AACR	*Anglo-American Cataloging Rules*
AECT	Association for Educational Communications and Technology
CLR	Council on Library Resources
ISBD	International Standard Bibliographic Description
MARC	MAchine Readable Cataloging
NELINET	New England LIbrary NETwork
NICEM	National Information Center for Educational Media
LC	Library of Congress
OCLC	Ohio College Library Center; later OCLC, Inc.
USOE	United States Office of Education
BALLOTS	Bibliographic Automation of Large Library Operations using a Time-sharing System

1901 Library of Congress (LC) initiated sale of catalog cards for books, thus promoting the distribution of standardized bibliographic information.

1918 American Library Association (ALA) Education Committee adopted a committee report of the North Central Association of Secondary Schools and Colleges specifying provision for lantern slides, Victrola records, etc., in high school libraries.

1923 National Education Association of the United States established the Department of Visual Instruction, predecessor of its Department of Audiovisual Instruction and the Association for Educational Communications and Technology.

1924 ALA Committee on Relationships Between Libraries and Moving Pictures was established by the ALA Council. This was the first of a long succession of ALA committees to concern itself with various aspects of access, use, distribution, production, and evaluation of audiovisual media. Films remained the principal focus for many years.

1934 ALA Visual Methods Committee recommended to the ALA Committee on National Planning that regional centers for visual aids be established and attached to existing libraries. The Committee on National Planning did not follow this recommendation, but did conclude that "libraries should assume responsibility for the preservation and use of visual materials and mechanical substitutes for the printed page."

1936 Publication of Educational Film Catalog by the H.W. Wilson Co. began, continuing to 1962. Title changed to Educational Film Guide in 1945.

1940 Joint Committee on Educational Films and Libraries was formed with representatives from the American Film Center, Association of School Film Librarians, Motion Picture Project of the American Council on Education, and ALA.

1940 ALA Visual Methods Committee and Library Radio Broadcasting Committee merged to form the ALA Audiovisual Committee. One function was "to further the establishment of national and regional clearinghouses for such materials."

1943 Educational Film Library Association was formed as a clearinghouse for information about 16mm film utilization, selection, evaluation, production, and distribution.

1945 LC organized a Motion Picture Project which developed a questionnaire to determine the bibliographic control needs of the producers and users of films.

1946 U.S. Copyright Office drafted rules for cataloging films which were applied to motion pictures and filmstrips registered for copyright. The result was the Catalog of Copyright Entries: Motion Pictures and Filmstrips.

1948 LC published the Final Report on the Rules for Descriptive Cataloging in the Library of Congress; prepared by the ALA Committee on Descriptive Cataloging. It concluded that rather than "attempting to draw up one body of rules which can be applied to all types of materials...simplified rules for special materials should be included in the code."

1949 LC Descriptive Cataloging Division published Rules for Descriptive Cataloging in the Library of Congress. Rules for special materials, except maps, were not included as they had not yet been developed. Rules completed in following years were issued as supplements to this publication.

1950 ALA's Booklist began inclusion of films and filmstrips with full bibliographic information. This was subsequently suspended, then revived as interest increased. During 1969 and 1970 full coverage of audiovisual forms was permanently established.

1951 LC Film Cataloging Committee drafted cataloging rules for motion pictures and filmstrips based on those rules developed by the Copyright Office in 1946.

1951 Eastman House and the Film Council of America sponsored an International Film Cataloging Conference. LC was urged to issue catalog cards for new films being registered for copyright, and to publish the rules used by the Copyright Office. Film companies agreed to send information about their films to the Library on data sheets in order to speed up cataloging.

1951 LC began issuing printed catalog cards for motion pictures and filmstrips; (later expanded to include other materials for projection). From 1951 through April 1957, cards were printed for materials registered for copyright; thereafter only materials added to the collection or for which data forms were received from producing or distribution agencies were included.

1952 -65 LC published successive editions of supplements to its Rules for Descriptive Cataloging in the Library of Congress under the following subtitles: Motion Pictures and Filmstrips, Phonorecords, Pictures, Designs and Other Two-Dimensional Representations.

1953 Unesco sponsored meetings in the United Kingdom and Washington, D.C., to promote international standards for film cataloging. The Conference in Washington recommended that the rules of LC and the British Film Institute form the basis for world-wide standards for descriptive cataloging. The Unesco Secretariat was to study the recommendations and attempt to develop internationally acceptable standards.

1953 LC began issuing printed catalog cards for phonorecords.

1953 Library of Congress Author Catalog, 1948-52 included music and phonorecords, and data for motion pictures and filmstrips were included in a separate volume. Works cataloged since 1952 have been included in separate volume(s) of the quarterly, annual, and quinquennial issues; presently under the title Library of Congress Catalogs: Films and Other Materials for Projection; and Music, Books on Music, and Sound Recordings.

1955 ALA Division of Cataloging and Classification formed the Special Committee on the Bibliographic Control of Audiovisual Materials under the chairmanship of Eunice Keen. The charge was "to survey the needs and existing practices and make recommendations for further action in the cataloging and classification of the materials."

1955 Eunice Keen issued a revised edition of her Manual for use in the Cataloging and Classification of Audio-Visual Materials for a High School Library, updating the preliminary edition of 1949. This early attempt to systematize cataloging of audiovisual materials was begun under the guidance of Jesse Shera.

1956 Council on Library Resources (CLR) was founded "to aid in the solution of library problems; to conduct research in, develop and demonstrate new techniques and methods and to disseminate through any means the results thereof." Since its origin CLR has provided full or partial funding for many projects relating to access to library materials, with emphasis on computer applications and cooperative efforts.

1957 ALA Special Committee on the Bibliographic Control of Audiovisual Materials reported the results of its survey, emphasizing the need for standardized cataloging rules, better coverage by LC cataloging, better subject headings for audiovisual materials, and research on how catalog users approach audiovisual materials in the catalog. One respondent suggested that "it would be helpful if the producer put the information needed for cataloging on the label on the film container."

1958 ALA published Code for Cataloging Music and Phonorecords, which was prepared by the Joint Committee on Music Cataloging of the Music Library Association and the ALA Division of Cataloging and Classification.

1959 Margaret I. Rufsvold and Carolyn Guss conducted a study "to determine a feasible method of establishing bibliographic control of education audiovisual materials and their educational utility." A national catalog of audiovisual materials was proposed, resulting in the Educational Media Index in 1964.

1960 Educational Media Council was formed in recognition of the need for coordinated efforts among professional, governmental, and industrial organizations in the educational media field.

1961 Cataloging experts meeting at the International Conference on Cataloging Principles agreed on a "Statement of Principles", upon which the first and second editions of the Anglo-American Cataloging Rules were based. The word "book" in the statement was interpreted to "include other library materials having similar characteristics."

1962 University of Southern California began an automated cataloging project using a computer to generate catalogs for educational film libraries. This led to development of the National Information Center for Educational Media (NICEM).

1963 Project MAC (Machine-Aided Cognition, Man and Computer, Multiple-Access Computers) was organized at Massachusetts Institute of Technology for the development of computer systems for direct and economical access through the Compatible Time-Sharing System. The essential idea was the use of the computer as a public utility, capable of benefiting a wide range of consumers.

1963 LC published Automation and the Library of Congress, a survey sponsored by CLR. It concluded that "Automation of bibliographic processing, catalog searching, and document retrieval is technically feasible in large research libraries," and recommended funding "devoting to securing system specifications for the automation of the internal operations of the Library of Congress and the functions it performs for other libraries".

1964 Educational Media Council's Educational Media Index was published by McGraw-Hill. This fourteen volume work was planned as a complete resource guide for all media, but was not continued after the first edition.

1964-67 Recognition of need for cooperation and computer-based regional technical processes by New England state university librarians led to CLR funding of a pilot project under the sponsorship of the New England Board of Higher Education, and the formation of the New England Library Network (NELINET). Establishment of other regional networks throughout the country followed.

1965 CLR published The Recording of Library of Congress Bibliographic Data in Machine Form, by Lawrence F. Buckland; a study of the feasibility of converting bibliographic data on LC cards to machine-readable form for the purpose of printing bibliographic products by computer, and distribution of bibliographic data to other libraries.

1966 ALA Council approved the formation of the Information Science and Automation Division, which has played an important role in promoting library automation and networking. An Audiovisual Section and a Video and Cable Communications Section were subsequently established.

1966-68 The MARC (MAchine-Readable Cataloging) Pilot Project was initiated at LC. Working from the preliminary findings of the Buckland report, it was designed to demonstrate the feasibility and utility of making LC cataloging data available to other libraries in machine-readable form. CLR provided funding.

1966 NICEM began to build a comprehensive data base of bibliographic information for nonprint materials.

1967 NICEM and LC began cooperative use of data sheets obtained from producers, media centers, and others to catalog motion pictures and filmstrips.

1967 Work began at Stanford University on the development of an online interactive technical services support system using a time-sharing computer. Subsequently the system became operational as BALLOTS (Bibliographic Automation of Large Library Operations using a Time-sharing System).

1967 National Technical Information Service issued The Identification of Data Elements in Bibliographic Records, by Ann T. Curran, et al. The purpose was to supply background information to the Subcommittee on Machine Input Records (SC-2) of the American National Standards Institute Committee (Z-39), which would help them "in determining which data elements should be tagged (identified) in machine readable records". This was to lead to development of standards for the identification, representation, and recording of information by the Subcommittee.

1967 Ohio College Library Center (OCLC) was chartered by the State of Ohio and eventually developed into an interactive online bibliographic network utilizing MARC records from LC and user input. In 1977 the name was changed to OCLC, Inc., with changes in governance to include all users of the system.

1967 ALA published the Anglo-American Cataloging Rules, North American Text, (AACR) with Part III devoted to the specific rules for cataloging the principal forms of audiovisual materials. General rules for books and booklike materials were extended to audiovisual materials, unless "specifically contravened or modified".

1967 National Medical Audiovisual Center (formerly the Audiovisual Unit of the Communicable Disease Center) was established to produce and distribute audiovisual materials. Guides for cataloging, and for audiovisual center management were issued.

1968 LC began publishing guides (updated by addenda and periodically revised) called MARC Formats for Books, Maps, Music, Serials, Manuscripts, and Films. The latter covered motion pictures, filmstrips, and other pictorial media intended for projection.

1968 Association of College and Research Libraries, Audiovisual Committee issued Guidelines for Audiovisual Services in Academic Libraries.

1968 Audio-Visual Associates established MEDIAFILE, which is a data base of records in machine-readable form utlized for the publication of several media indexes, including The International Index to Multi-Media Information. Online searching of the data base is possible.

1969 National Audiovisual Center was created to make audiovisual materials produced by the United States Government available for public use and to serve as the central clearinghouse for all federal audiovisual materials.

1969 Following the success of the MARC Pilot Project, LC established the MARC Distribution Service to distribute LC bibliographical records in machine-readable form.

1969 RECON (REtrospective CONversion) Pilot Project was initiated at LC to study the feasibility of conversion of LC bibliographic records to machine-readable form. Development and implementation of the format recognition process was an important achievement of the Project. Retrospective conversion of LC bibliographic records did not result.

1969 Project Intrex (Information Transfer Experiments) at Massachusetts Institute of Technology was developed to apply the technology for online interactive bibliographic systems and resource sharing through networking.

1969-70 A three week institute sponsored by USOE held on Systems and Standards for the Bibliographic Control of Media. Two additional meetings held prior to ALA in Chicago and AECT in Detroit in 1970. Papers of the Conferences were edited by Pearce Grove and Evelyn Clement, and published by ALA in 1972 under the title Bibliographic Control of Nonprint Media.

1970 National Commission on Libraries and Information Science (NCLIS) was established by the U.S. Congress to advise the Congress and the President on national library policy. It was to "give first priority in its planning effort to providing new and improved services that will be helpful to all libraries in the country and their users, at every level of society".

1970 ALA and USOE sponsored the Conference on Interlibrary Communications and Information Networks to examine every aspect of library networking and make recommendations for a plan of action and future implementation. The Conference called on the NCLIS to "devise as a matter of priority a comprehensive plan to facilitate the coordinated development of the nation's libraries, information centers, and other knowledge resources". Proceedings were published by ALA in 1971.

1970 Federal Communications Commission took a position regarding common carrier competition that permitted development of customized private line services and the capacity to interconnect to form a computer-based national network.

1970 R.R. Bowker began publishing significant guides and resource indexes in the audiovisual field, including: Audiovisual Market Place, Educational Media Year Book, Developing Multimedia Libraries, Feature Films on 8mm and 16mm, Managing Multimedia Libraries, and the Consortium of University Centers-Bowker Educational Film Locator. Bowker's Bibliographic Information Publishing System (BIPS) was developed to form the basis for their computer-based publishing.

1971 American National Standards Institute published the American National Standard Format for Bibliographic Information Interchange on Magnetic Tape (ANSI Z39.2) which described "a generalized structure which can be used to transmit, between systems, records describing all forms of materials capable of bibliographic descriptions as well as related records such as authority records for authors and subject headings".

1971 Non-book Materials: Their Bibliographic Control, a Proposed Computer System for Cataloguing of Audiovisual Materials in the United Kingdom, by Leslie A. Gilbert and Jan W. Wright was published by the National Council for Educational Technology (U.K.).

1971 Joint Advisory Committee on nonbook materials was established to advise the authors of Nonbook Materials: The Organization of Integrated Collections on the content and format of the first edition. Representatives were from ALA, Canadian Library Association, AECT, Educational Media Association of Canada, and Canadian Association of Music Librarians. The function of the Committee was subsequently broadened to provide a formum for discussion among organizations on the international level, and it continued to advise the authors on revisions of the above-mentioned work.

1971 Consortium of University Film Centers (CUFC), a cooperative organization of universities maintaining 16mm film rental libraries was established. The Data Bank Committee worked toward raising the standards and systematizing the development and utilization of film cataloging information, resulting in the publication of the CUFC-Bowker Educational Film Locator in 1977.

1972 Following three years of computer-based cataloging services through Inforonics (based on MARC tapes), and a six month test project at Dartmouth College, NELINET signed an agreement for online cataloging through OCLC. Other regional networks subsequently contracted for services from OCLC.

1972 LC began inputting records for motion pictures, filmstrips, slide sets, and sets of transparencies in the MARC system. LC began distribution of machine-readable catalog records for these materials through its MARC Distribution Service. MARC records were used in preparing the first computer-produced catalog in LC entitled Films and Other Materials for Projection.

1973 *Canadian Library Association published Nonbook Materials: The Organization of Integrated Collections, 1st ed., by Jean Riddle Weihs, Shirley Lewis and Janet MacDonald. This work was particularly designed to facilitate the development of "omnimedia" catalogs.

1973 *National Council for Educational Technology and Library Association published Non-book Materials Cataloguing Rules, prepared by the Library Association's Media Cataloguing Rules Committee.

1974 "Nonprint Media Guidelines" developed by a task force funded by Baker & Taylor Co. were published in Southeastern Librarian under the title "Nonprint Media Cataloging, Classification, and Designation: Recommended Standards". Media designations and codes were adopted with slight modifications in AECT's Standards for Cataloging Nonprint Materials (1976).

1974 COoperative MARC (COMARC) pilot project was initiated to test the feasibility of distribution through the MARC Distribution Service locally-converted machine-readable monograph records derived from LC cataloging copy. The program continues with the desirability of inclusion of nonprint media recognized.

1974 Council for Computerized Library Networks (CCLN) was established to coordinate and determine network policy through which national and international computerized library networks could be built and administered.

1974 Joint Steering Committee for the Revision of AACR was formed to guide revision of the Rules and coordinate ideas of the committees representing the authors. Expansion and improvement of the rules for audiovisual media were among the goals of the revision.

1974 International Federation of Library Associations published the International Standard Bibliographic Description for Monographic Publications (ISBD (M). This was followed by preparation of a general ISBD and ISBD's for nonbook materials, maps and serials.

1974 ALA published a revision of AACR, Chapter 6, Separately Published Monographs in order to "incorporate the provisions of the International Standard Bibliographic Description (Monographs) into the text in regular cataloging rule form".

1975 *ALA published a revision of AACR, Chapter 12, Audiovisual Media and Special Instructional Materials, improving the rules for motion pictures and filmstrips, adding rules for media not previously covered, and incorporating rules for slides and transparencies from Chapter 15. Lacking a specific ISBD for audiovisual media, the authors "patterned the rules whenever possible after the standard for monographs".

1975 LC issued Addendum No. 5 to Films: A MARC Format, expanding coverage for the other audiovisual media incorporated in the revision of AACR, Chapter 12.

1975 NCLIS issued Toward a National Program for Library and Information Services: Goals for Action mandating equal opportunity of access to our knowledge resources, including audio and visual materials.

1975 ALA Audiovisual Committee, descendent of the ALA Committee on Relationships Between Libraries and Motion Pictures (1924) voted to abolish itself as audiovisual interests had become dispersed among numerous ALA committees and a central coordinating unit was no longer workable.

1975 Planning began to extend BALLOTS into a multi-library network, and all modules planned for Stanford University became operational.

1975 Unesco issued a report by C.P. Ravilious of his world-wide survey of bibliographic treatment of audiovisual materials: A Survey of Existing Systems and Current Proposals for the Cataloguing and Description of Non-book Materials Collected by Libraries.

1976 *AECT published Standards for Cataloging Nonprint Materials, 4th ed., by Alma Tillin and William Quinly.

1976 NCLIS and AECT sponsored PROJECT: MEDIA BASE "to develop goals, objectives and functional specifications for the bibliographic control of nonprint media".

1976 Films Format: A Description of Fixed Field, Variable Fields, Indicators and Subfield Codes was issued by OCLC and inputting of materials covered by AACR Chapter 12 became possible.

1976 Office of the Special Assistant for Network Development was established at LC (name changed the Network Development Office in 1977) "to insure that the Library of Congress meet its responsibilities in regard to library bibliographic networking and to coordinate the planning activities leading toward the development of the library bibliographic component of the National Library Library and Information Service Network, in cooperation with other network-related organizations".

1976 Network Advisory Group was established by LC "to explore the requirements and the possibilities for increased cooperation among the components of the evolving system". The Group was also to advise the Librarian of Congress on LC's role in national networking. The name of the Group was changed to Library of Congress Network Advisory Committee in 1977.

1976 AVLINE (Audio Visuals on-LINE), a data base maintained by the National Library of Medicine containing references to audiovisual instructional materials in the health sciences, became operational.

*Accepted by the Joint Steering Committee on AACR as the basis for the revision of relevant chapters.

1976 International Standard Book Number (ISBN) International Panel agreed at the request of AECT and the Consortium of University Film Centers that national agencies were authorized to supply numbers for nonbook materials and agreed to inform the International Organization for Standardization of these applications to nonbook materials.

1976 LC implemented the rules in AACR, Chapter 12, Revised, for those nonprint materials within the scope of its cataloging program.

1976 ERIC Clearinghouse on Information Resources published Nonprint Media Information Networking: Status and Potentials, the papers from a conference, edited by James W. Brown. Conference participants considered the feasibility and desirability of developing a system "capable of obtaining, storing, and selectively retrieving dependable qualitative (as well as technical or purely descriptive) data about specific nonprint media items".

1976 NICEM and Library of Congress revised data sheets used in cooperative program of cataloging to reflect revisions in rules in AACR, Chapter 12, Revised.

1976 NCLIS and the Institute for Computer Sciences and Technology of the National Bureau of Standards established and operated a task group to address the general problem of providing for the nationwide automated interchange of information among existing and planned library and information science networks.

1977 Library of Congress issued the preliminary edition of Toward a National Library and Information Service Network: The Library Bibliographic Component, prepared by the Library of Congress Network Advisory Group.

1977 Network Technical Architecture Group was created, upon recommendation of the Network Advisory Group (LC), to design a national library network for bidirectional interlinking of bibliographic utilities for information sharing.

1977 Quarterly issues of the National Library of Medicine's Current Catalog began inclusion of items cataloged for the AVLINE data base, consisting of three parts: name section, subject section, and procurement section. Annual cumulations will be published separately from the Current Catalog.

1977 LC Network Advisory Committee (replacing the Network Advisory Group) was "established by the Librarian of Congress to advise him on various issues concerning the Library's role in the evolving national library and information service network proposed by the National Commission on Libraries and Information Science in its program document".

1977 Executive Board of the Resources and Technical Services Division of ALA approved the publication of the second edition of AACR. This edition includes detailed rules for the cataloging of nonprint materials, and will be implemented by LC in 1980. It incorporates the internationally approved ISBD's.

1977 National Film Board of Canada published A Plan for an Information/ Distribution System for Canadian Audiovisual Products, describing a comprehensive computer-based system to encourage and facilitate use of audiovisual materials.

Principal sources used for the Chronology:

Avram, Henriette D. MARC, Its History and Implications. Washington, D.C., Library of Congress, 1975.

Brown, James W., ed. Nonprint Media Networking: Status and Potentials. Stanford, California, ERIC Clearinghouse on Information Resources, 1976.

Clement, Evelyn G. Audiovisual Concerns and Activities in the American Library Association, 1924-1975. Ph.D. Dissertation. Bloomington, Indiana, Indiana University, 1975.

Grove, Pearce S., and Clement, Evelyn G., eds. Bibliographic Control of Nonprint Media. Chicago, American Library Association, 1972.

These are sources other than the actual publications noted in the Chronology, most of which were actually examined.

APPENDIX B

INVENTORY SUMMARY

1. NAME OF DATA BASE (INCLUDE ACRONYM, IF ANY)

2. ADDRESS

3. CONTACT PERSON _____ PHONE ( )

4. DATE DATA BASE WAS FIRST SEARCHABLE BY MACHINE 1964-1977

5. NUMBER OF TITLES IN THE DATA BASE 365 - 1,557,009

   NUMBER OF NONPRINT TITLES 100 - 512,000

6. UPDATE INFORMATION

   FREQUENCY

7	DAILY	5	QUARTERLY	5	OTHER (PLEASE SPECIFY)
9	WEEKLY	4	SEMI-ANNUALLY		
7	MONTHLY	4	ANNUALLY		

   AVERAGE NUMBER OF TOTAL TITLES PER UPDATE 15-5,000

   METHOD OF UPDATE (CHECK ALL THAT APPLY)

- 6 MARC TAPES
- 22 YOUR CENTER ONLY
- 11 CENTER THRU WRITTEN INPUT FORMS SUPPLIED BY USER
- 9 CENTER THRU TAPES, PUNCH CARDS OR OTHER MECHANICAL FORM SUPPLIED BY USER
- 5 ON-LINE BY USER
- 7 OTHER (PLEASE SPECIFY) _____

7. INCLUSIVE DATES OF ITEMS INDEXED IN THE DATA BASE

   FROM 1890 TO present

   ARE ENTRIES FOR RETROSPECTIVE (OLDER THAN 5 YEARS) TITLES ADDED TO THE DATA BASE? YES 31 NO 10

   ARE ENTRIES FOR TITLES DELETED? YES 29 NO 12

   CRITERIA FOR DELETION Out of date, lost, damaged, errors, duplication

8. FORMATS INCLUDED (CHECK ALL THAT APPLY)

15 PRINT (BOOKS, SERIALS, ETC.)	11 MODEL
10 CHART	35 MOTION PICTURE
6 DIORAMA	13 REALIA
24 FILMSTRIP	23 SLIDE
8 FLASH CARD	22 SOUND RECORDING
14 GAME	17 TRANSPARENCY
22 KIT	11 TWO-DIMENSIONAL REPRESENTATION
1 MACHINE-READABLE DATA FILE	31 VIDEO RECORDING
10 MAP	____ OTHER (PLEASE SPECIFY)
9 MICROSCOPE SLIDE	

9. MAJOR SUBJECT DISCIPLINES INCLUDED, IF ANY:

CHECK IF MULTIDISCIPLINARY /_/

10. WHAT SET OF CATALOGING/INDEXING STANDARDS ARE USED?

17 ANGLO AMERICAN CATALOGING RULES
8 AECT STANDARDS FOR CATALOGING NONPRINT MATERIALS
1 CANADIAN LIBRARY ASSOCIATION. NONBOOK MATERIALS: THE ORGANIZATION OF INTEGRATED COLLECTIONS
19 OTHER (PLEASE SPECIFY)

11. ARE AUTHORITY FILES MAINTAINED FOR

20 NAME? 17 SERIES? 17 CORPORATIONS?

12. IS A STANDARD LIST OF SUBJECT/DESCRIPTOR TERMS USED?

13 LIBRARY OF CONGRESS
6 SEARS
23 OTHER (PLEASE SPECIFY)

13. IF MEDIA CODES (E.G. 'FS' FOR FILMSTRIP) ARE USED, WHAT STANDARD IS FOLLOWED?

14. IS FILE IN MARC* FORMAT? YES 5 NO 33

MARC* COMPATIBLE? YES 11 NO 27

*MACHINE READABLE CATALOGING FORMAT PREPARED BY THE LIBRARY OF CONGRESS

15. DATA ELEMENTS INCLUDED/SEARCHABLE (CHECK ALL THAT APPLY)

	INCLUDED	SEARCHABLE
AUTHOR	26	
TITLE	39	
PRODUCER	33	
DISTRIBUTOR (SALE)	29	
DISTRIBUTOR (LOAN/RENTAL)	19	
DATE (RELEASE)	26	
DATE (COPYRIGHT)	25	
NUMBER OF PHYSICAL UNITS	31	
RUNNING TIME	31	
SIZE/FORMAT	28	
LANGUAGE	24	
SERIES	30	
SUBJECT	36	
LOCATION	20	
PRICE (SALE)	17	
PRICE (RENTAL)	10	
PRODUCER ADDRESS	4	
DISTRIBUTOR ADDRESSES	12	
AUDIENCE/GRADE LEVEL	24	
SUMMARY	29	
EVALUATION	6	
MEDIA CODE	16	
LC CARD NUMBER	8	
ACCESSION OR CALL NUMBER	32	

16. AVAILABILITY OF DATA BASE

25 IN-HOUSE 3 REGIONAL 3 STATE ____ MULTI-STATE

8 NATIONAL ____ OTHER (PLEASE SPECIFY)

International 4

17. USER COMMUNITY (DESCRIBE THE PRIMARY USERS AND ANY USER RESTRICTIONS OF YOUR DATA BASE)

libraries, faculty, staff, students, for type setting only

AVERAGE NUMBER OF USERS ANNUALLY 1-12,000,000

HAVE ANY USER STUDIES BEEN CONDUCTED TO DETERMINE

7 NONPRINT DATA BASE FORMAT AND CONTENT
18 NEEDS OF YOUR USERS
5 USES MADE OF THE INFORMATION SUPPLIED TO YOUR USERS

PLEASE SEND A COPY OF ANY SUCH STUDIES, IF AVAILABLE.

18. SEARCH REQUEST OPTIONS

IS DATA BASE AVAILABLE ON-LINE? YES 15 NO 16

HOW MAY USERS REQUEST SEARCHES?

19 IN-PERSON 17 PHONE 18 MAIL 1 Telecopier

IF DATA BASE IS AVAILABLE THROUGH A SERVICE BUREAU, PLEASE LIST NAME OF THE BUREAU.

19. TYPE OF OUTPUT OF SEARCH RESULTS (CHECK ALL THAT APPLY)

16 CRT DISPLAY 6 COM (COMPUTER OUTPUT MICROFORM)
33 PRINT-OUT 6 OTHER (PLEASE SPECIFY)

20. ARE THERE PRINTED PRODUCTS RELATED TO YOUR DATA BASE?

SUBJECT TERM OR DESCRIPTOR LIST? YES 32 NO 6

MATERIALS LIST? YES 32 NO 5

IF YOU PRINT A MATERIALS LIST -
ARE MORE, THE SAME NUMBER, OR FEWER ENTRIES INCLUDED IN THE PRINTED LIST?_____

IS MORE, THE SAME AMOUNT, OR LESS INFORMATION ABOUT EACH ITEM INCLUDED IN THE PRINTED LIST?_____

LIST ANY OTHER PRINTED PRODUCTS.

21. CAN THE PHYSICAL ITEM, OR A REPRODUCTION, BE REQUESTED THRU THE SYSTEM

11 ON LOAN? 4 FOR PURCHASE?

22. CHARGES FOR USE

FEES FOR SEARCHES OF DATA BASE (INCLUDE ROYALTY, OFF-LINE PRINTING CHARGES. IF VARIABLE PRICE SCALES EXIST, PLEASE DESCRIBE)

SALE OF DATA BASE (TAPES)_____
LEASE OF DATA BASE (TAPES)_____

EXPLAIN ANY RESTRICTIONS.

23. TECHNICAL SPECS

ARE SEARCH PROGRAMS AVAILABLE? YES 13 NO 20

PROGRAMMING LANGUAGE USED

8 P/L 1
9 ASSEMBLER
23 OTHER (PLEASE SPECIFY)

TAPE INFORMATION

TRACKS	6 7		18 9					
DENSITY (BPI)	2 556		16 800		15 1600		___ OTHER_____	
LABELS PRESENT	13 YES		7 NO					
CODE	5 BCD		13 EBCDIC		4 ASCII		8 OTHER_____	

24. LIST ANY RELATED DATA BASE(S) WHICH YOURS IS COMPATABLE WITH OR A PART OF.

25. COMMENTS (USE REVERSE SIDE IF NEEDED)

NAME OF INDIVIDUAL FILLING OUT THIS FORM_____ _____DATE_____

PLEASE RETURN COMPLETED FORM TO: GEORGE L. ABBOTT
PROJECT: MEDIA BASE
B101 BIRD LIBRARY
SYRACUSE UNIVERSITY
SYRACUSE, NY 13210

APPENDIX C

RESPONDENTS TO INVENTORY QUESTIONNAIRE

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RESPONDENTS TO INVENTORY QUESTIONNAIRE

The following listed respondents to the inventory survey provided data on their developing or operating machine based system that supports bibliographic records systems for audiovisual resources.

California

Univ. of California Extension Media Center Film Catalog
California Office of State Printing
N. 7th and Richards Blvd.
Sacramento, CA. 95814

Univ. of California Extension Media Center
2223 Fulton Street
Berkeley, CA 94720

Office of the L.A. County Superintendent of Schools
Division of Educational Media
Room 250
9300 East Imperial Highway
Downey, CA 90242

National Info. Center for Educational Media (NICEM)
Univ. of Southern California
University Park
Los Angeles, CA 90007

A.C. Catalog of Nonprint Materials
Ambassador College
Dept. of Learning Resources
300 W. Green Street
Pasadena, CA 91123

West Instructional Television, Inc.
1549 North Vine St.
Los Angeles, CA 90028

Learning Activities Resource Center
Office of the Dean
California State Univ., Chico
Chico, CA 95929

(IMC) Calif. State Univ., Chico
Instructional Media Center 16mm Film Catalog
Instructional Media Center
California State University
Chico, CA 95929

IMC/CSUF Catalog
Instructional Media Center
California State University
Fresno, CA 93740

Instructional Media Center Catalog
Instructional Media Center
Humboldt State University
Arcata, CA 95521

Media Resources Library
California State Univ., Long Beach
1250 Bellflower Boulevard
Long Beach, CA 90840

Resource Materials
A-V Center
Calif. State, San Bernardino
San Bernardino, CA 92407

16mm Film Catalog
ITV Videotape Catalog
35mm Filmstrip Catalog
Instructional Resources Center
San Jose State University
125 So. 7th Street
San Jose, CA 95192

Calif. State College, Stanislaus
Film Cat.
800 Monte Vista Ave.
Turlock, CA 95380

MEDIAFILE
A-V Associates
180 East California Blvd.
Pasadena, CA 91105

CANADA

MARC Records Distribution Service
(MRDS) File
Canadian MARC Office
Cataloguing Branch
National Library of Canada
395 Wellington St.
Ottawa, Ontario, Canada
K1A ON4

Project Access-Index
Ontario Educational Communications
Authority
2180 Yonge Street
Toronto, Ontario, M4S 2C1

Learning Resources Center
Southern Alberta Institute of
Technology
1301 16th Ave., N.W.
Calgary, Alberta, Canada
T2M064

COLORADO

Boulder Public Library Media
Center Catalog
Boulder Public Library Media
Center
P.O. Drawer H
1000 Canyon Blvd.
Boulder, CO 80302

D.C.

NAC Catalog Data Base
National Audiovisual Center
General Services Administration
Washington, DC 20409

Educational Resources Info.
Center (ERIC)
National Institute of Education
Office of Dissemination and
Resources
Washington, D.C. 20208

ILLINOIS

Danville Dist. 118 A-V Dept.
516 N. Jackson
Danville, IL 61832

Northern Illinois Learning
Resources Cooperative (NILRC)
Waubonsee Community College
Route 47 at Harter Rd.
Sugar Grove, IL 60554

Univ. of Illinois Visual
Aids Service Film Catalog
Master File
1325 South Oak St.
Champaign, IL 61820

IOWA

FILMS
Media Library A-V Center
C-5 East Hall
Iowa City, Iowa 52242

KANSAS

CHRP (College of Health Related Professions) Catalog
Director, Health Education Research and Development
Box 43
College of Health Related Professions
Wichita State University
Wichita, Kansas 67208

MARYLAND

AVLINE
National Library of Medicine
8600 Rockville Pike
Bethesda, MD 20014

AGRICOLA
Food and Nutrition Information Center
National Agricultural Library
Beltsville, MD

MICHIGAN

RAMS Facilities Media Program
Oakland Schools
2100 Pontiac Lake Road
Pontiac, MI 48054

NEW JERSEY

Computer Aided Processing and Terminal Access Information Network (CAPTAIN)
Rutgers University Libraries
New Brunswick, NJ 08903

NEW MEXICO

APS-SPC
Albuquerque Public Schools
Library Processing Center
P.O. Box 25704
Albuquerque, NM 87125

NEW YORK

Syracuse Univ. Film Rental Center
1455 E. Colvin Street
Syracuse, NY 13210

SCRLC Media Director: Pt. I, Films and Videotapes
Shelton Ct. College Ave.
Ithaca, NY 14850

CUNY Film Consortium
University Computer Center
555 W. 57th St.
New York, NY 10036

CUFC/R.R. Bowker Co.
Educational Film Locater
1180 Ave. of the Americas
New York, NY 10036

OHIO

National Instructional Mat. Information System (NIMIS)
National Center on Educational Media and Materials for the Handicapped
The Ohio State University
Columbus, OH 43210

OREGON

B/NA Cataloging Data Base
10300 S.W. Allen Blvd.
Beaverton, OR 97005

TEXAS

Texas SLRC Info. Retrieval Program
1912 Speedway, Education Bldg. 34
Austin, Texas 78712

Tarrant County Jr. College
Technical Services
828 Harwood Rd.
Hurst, Texas 76053

South Texas Multiregional Processing
Center (ST/MRPC)
Info. Retrieval System/Booking
and Cataloging
1550 Northeast Loop 410
San Antonio, TX 78209

VIRGINIA

Directorate of Audiovisual Activities
Office of Information for the Armed
Forces (IAF)
OASD (PA)
1117 N. 19th St.
Arlington, VA 22209

WASHINGTON

Washington Library Network (WLN)
Washington State Library
Olympia, WA 98504

WISCONSIN

WMVS Program Library
WMVS-TV
1015 N. 6th St.
Milwaukee, WI 53203

APPENDIX D

PROJECT MEDIA BASE AUTHORS' GROUP AND STAFF

APPENDIX D

PROJECT MEDIA BASE AUTHORS' GROUP AND STAFF

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Dr. Clinton J. Wallington of AECT made several significant contributions during the early stages of the Project.

APPENDIX E

TASK ADVISORY COMMITTEE

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TASK ADVISORY COMMITTEE

TAC members represented the library/information service field as it relates to audiovisual materials in general, rather than specific constituencies.

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Washington, D.C. 20540

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New York, New York 10036

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Stanford, California 94305

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